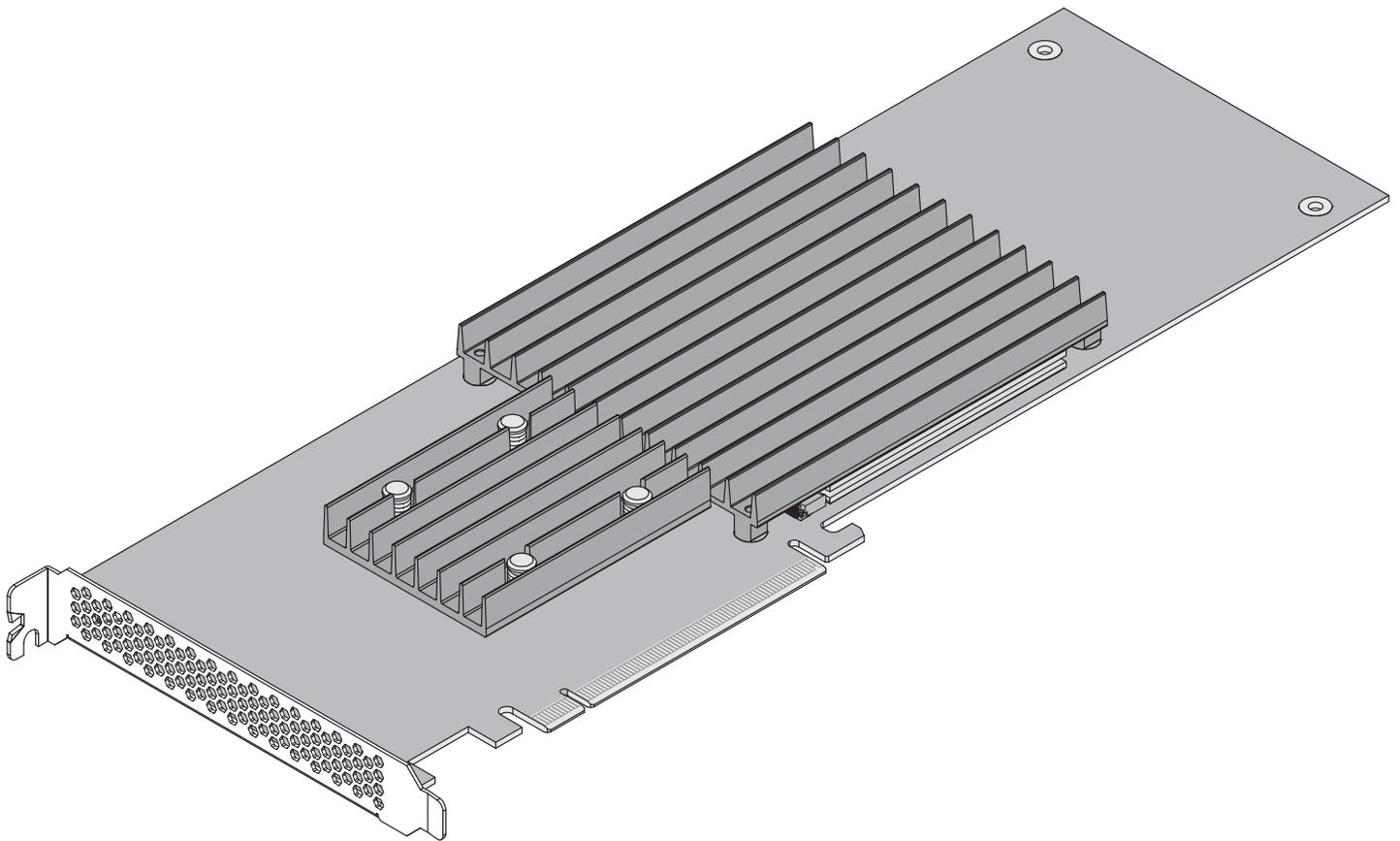


# Sonnet M.2 4x4 PCIe® Card

## Quick Start Guide



**PCI EXPRESS®**



For  
Windows



**SONNET™**

## Introduction, Compatibility Information, and Card Description

Congratulations on your purchase! The Sonnet M.2 4x4 PCIe Card provides a handy way to install up to four M.2 format PCIe SSDs into a PCIe slot. macOS®, Windows®, Linux®, and Thunderbolt™ compatible, this card works in computers and Thunderbolt-to-PCIe card expansion systems.



**Support Note:** This document was up to date at the time of printing. However, changes to the hardware or software may have occurred since then. Please check the Sonnet website for the latest documentation.

1. Go to [www.sonnettech.com/support/kb/kb.php](http://www.sonnettech.com/support/kb/kb.php)
2. Click the Computer Cards link.
3. Click the PCIe Cards link.
4. Click the Sonnet M.2 4x4 PCIe Card link, and then click the Manual link.
5. Click the Sonnet M.2 4x4 PCIe Card (Silent) Quick Start Guide [English] link, and then check the Document Version information. If the version listed is later than this document (revision E), click the Download Now button for the latest version.

### Mac® Compatibility

- Mac Pro® 5,1 (Mid 2010 & Mid 2012) with available full-length x16 PCIe card slot
- Mac Pro 7,1 (2019) – Use x16 PCIe slot (slot 3, 4, or 5) for full performance
- macOS 10.13.6+

### Windows Compatibility

- Computer with available full-length, full-height x16 PCIe card slot (PCIe 3.0 slot preferred; PCIe bifurcation not required)
- Windows 10 (64-bit Edition Version 1809 or greater)

### Linux Compatibility

- Computer with available full-length, full-height x16 PCIe card slot (PCIe 3.0 slot preferred; PCIe bifurcation not required)
- Linux Kernel 5.0+

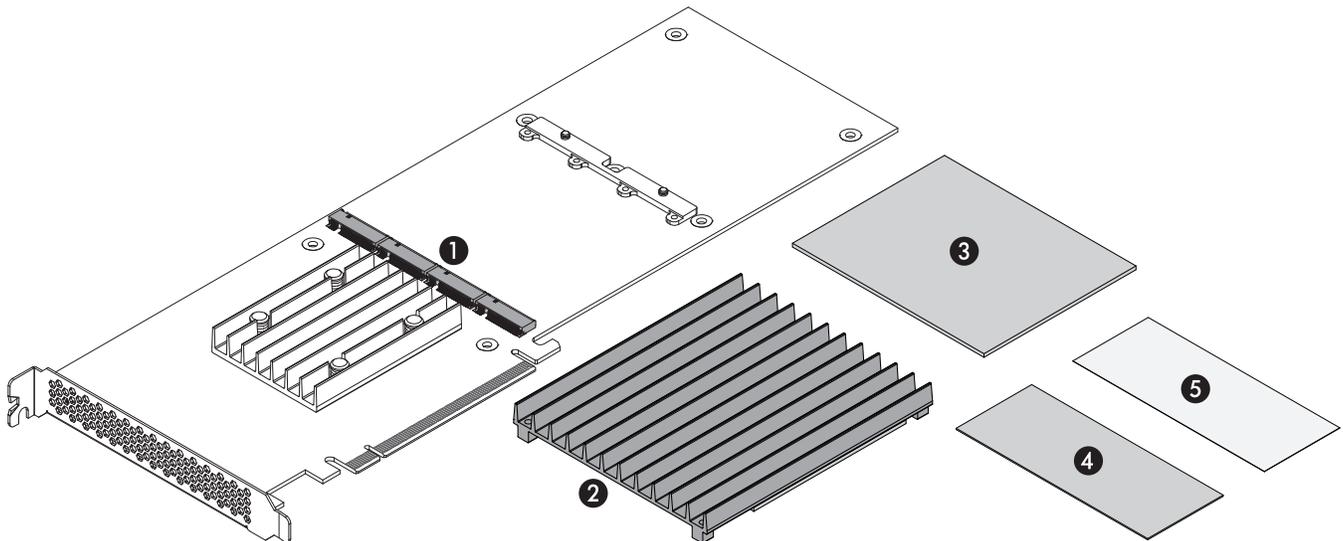
### Thunderbolt Compatibility

- Mac computer with Thunderbolt 3 or Thunderbolt 2 ports via a Thunderbolt 3 or 2 to PCIe card expansion system with available full-length x16 PCIe card slot
- Windows computer with Thunderbolt 3 ports via a Thunderbolt 3 to PCIe card expansion system with available full-length x16 PCIe card slot
- Linux computer with Thunderbolt 3 ports via a Thunderbolt 3 to PCIe card expansion system with available full-length x16 PCIe card slot

### M.2 SSD Compatibility

Both single- and double-sided (components on both sides) SSDs are supported. *(Note that the earlier version of this card supports only single-sided SSDs without thermal pad modification).* To view a list of compatible SSDs, please visit the Sonnet website at: [https://sonnettech.com/support/downloads/manuals/M2\\_compatibility.pdf](https://sonnettech.com/support/downloads/manuals/M2_compatibility.pdf)

## Card Description



#### 1 – M.2 SSD Sockets

The Sonnet M.2 4x4 PCIe Card supports the installation of four single- or double-sided M.2 2280 NVMe PCIe SSDs with “M” key connectors. When configuring them as RAID volumes, Sonnet recommends the use of identical SSDs.

#### 2 – SSD Heatsink

Backed with a thermal transfer pad that contacts the SSDs’ components, the heatsink conducts heat away from the SSDs.

#### 3 – Thermal Transfer Pad (Thickest, Full-Size)

Apply this to the card when you install single-sided SSDs; instructions follow.

#### 4, 5 – Thermal Transfer Pads (Medium and Thin, Half-Size)

Apply these to the card when you install double-sided SSDs; instructions follow.

## SSD and Card Installation Steps



**Support Note:** When handling computer products, you must take care to prevent components from being damaged by static electricity. Before opening your computer or removing parts from their packages, always ground yourself first by touching a metal part of the computer, such as a port access cover, and work in an area free of static electricity; avoid carpeted areas. Handle all electronic components by their edges, and avoid touching connector traces and component pins.

1. Handling the card by its edges, remove the Sonnet M.2 4x4 PCIe Card from its packaging.
2. Place the card upside-down on a flat, level surface (**Figure 1**).
3. Using a Phillips screwdriver, remove the five screws securing the heatsink to the card (**Figure 1**). Set aside the screws.
4. Flip the card over, and then remove the four screws as shown (**Figure 2**). Set aside the screws.



**Support Note:** The earlier version of this product shipped with a full-size thermal transfer pad pre-attached (and no separate pads included in the package), limiting compatibility to single-sided SSDs (components on one side only). If this is the case with your card, please skip to step 21 to complete the SSD installation.



**WARNING:** You are required to install either one or two thermal transfer pads on the M.2 4x4 PCIe Card before installing SSDs. It is critical that you use the correct pad or pads, determined by the type of SSDs you install. Using the wrong pad(s) may result in poor performance, or may possibly damage the card.

5. Determine whether you are installing single- or double-sided SSDs (components on one or both sides). If you are installing single-sided SSDs, remove the thickest, full-size thermal transfer pad from its packaging. Otherwise, skip to step 12.
6. Carefully peel off the backing material from *one* side of the pad.
7. Starting with one edge, carefully apply the pad to the card between the SSD sockets and retainer screw screw holes; make sure to avoid trapping air bubbles (**Figure 3**).
8. Rub the pad all over to ensure good contact with the card (**Figure 3**).

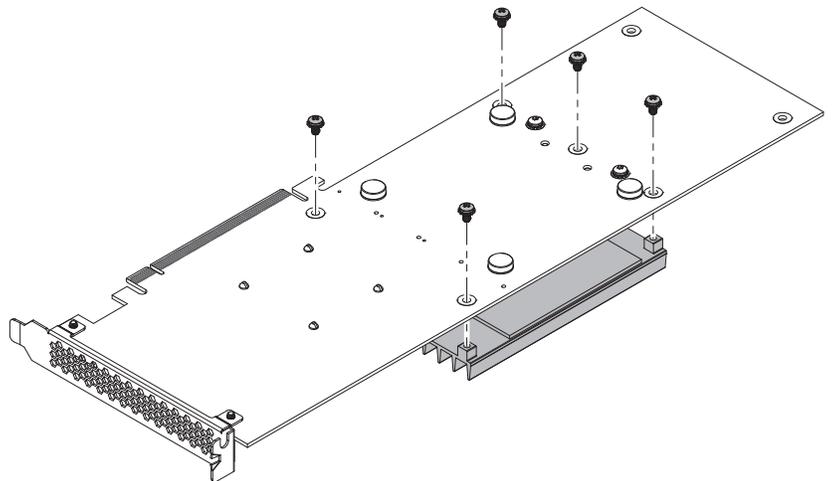


Figure 1

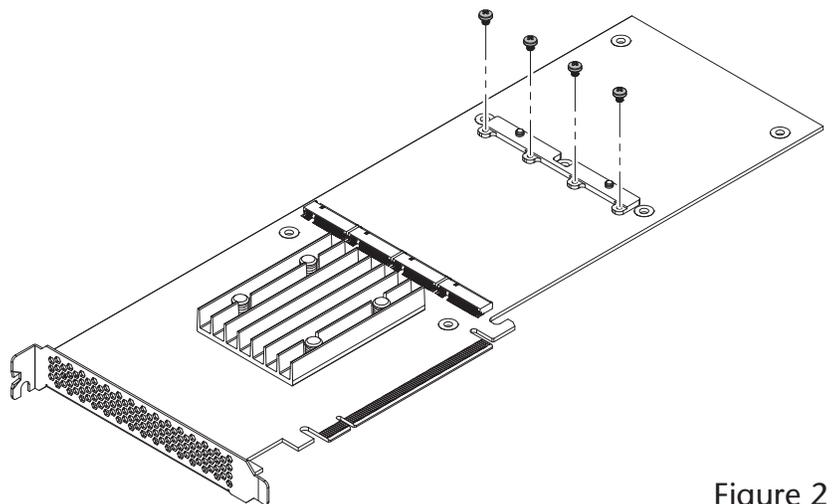


Figure 2

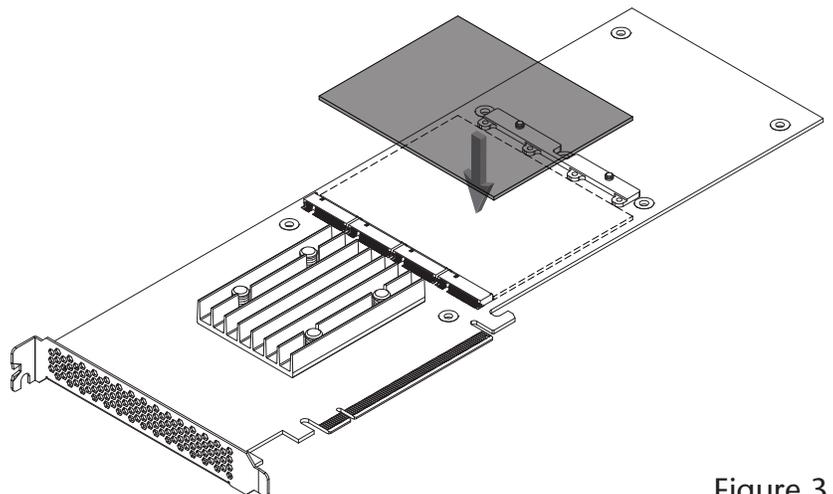


Figure 3

## SSD and Card Installation Steps

9. Peel off and set aside the backing material from the top of the pad you just installed (Figure 4).

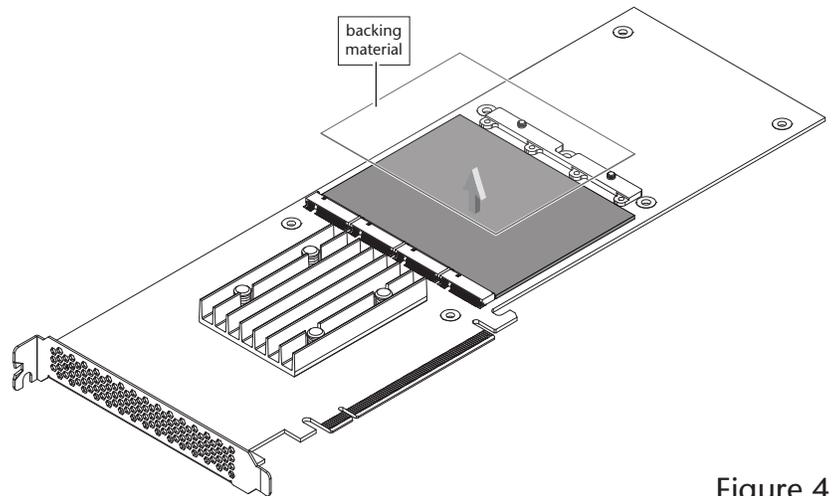


Figure 4

10. If you are installing four SSDs now, skip to step 21. Otherwise, cut the backing material as shown, removing 1/4 of the sheet when installing one or three SSDs, or 1/2 of the sheet when installing two SSDs (Figure 5).

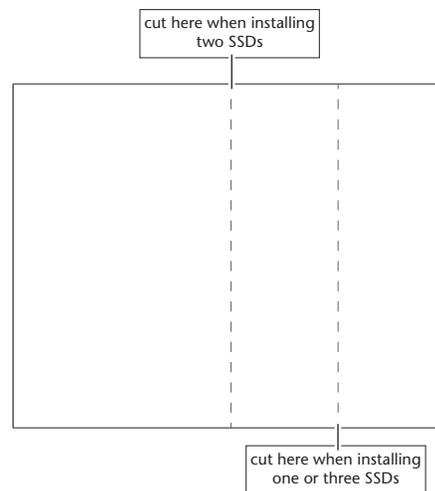


Figure 5

11. Reapply the cut backing material to the thermal transfer pad as shown where no SSD(s) will be installed (Figure 6). By reapplying the backing plastic, you are protecting the sticky thermal pad from collecting dust, and the thermal pad will be clean when you are ready to install additional SSDs. Note that this example shows preparation for installing only one SSD.

Skip to step 21.

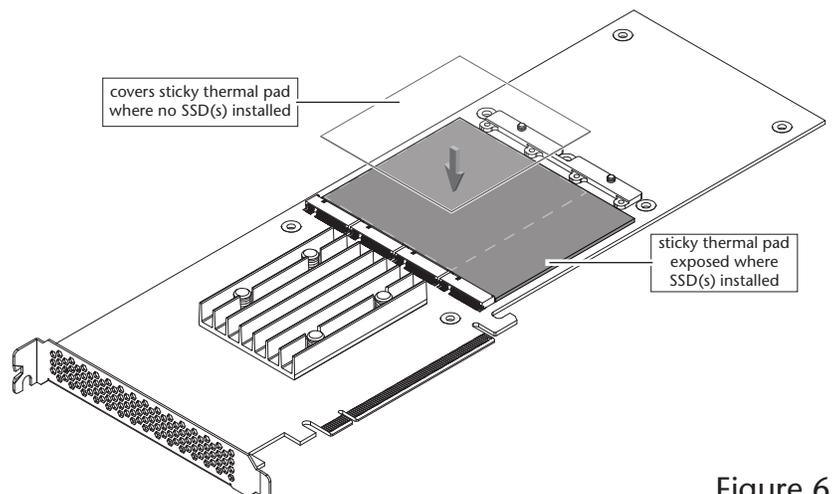


Figure 6

## SSD and Card Installation Steps

12. Assuming you are installing double-sided SSDs, remove the half-size thermal transfer pads from their packaging.
13. Carefully peel off the backing material from *one* side of the medium thickness pad.
14. Starting with one edge, carefully apply the pad to the card next to the SSD sockets as shown; make sure to avoid trapping air bubbles (Figure 7).
15. Carefully peel off the backing material from *one* side of the thinnest pad.
16. Starting with one edge, carefully apply the pad to the card between the already-applied pad and the retainer screw screw holes as shown; make sure to avoid trapping air bubbles (Figure 7).
17. Rub the thermal transfer pads all over to ensure good contact with the card (Figure 7).
18. Peel off and set aside the backing material from the top of the pads you just installed (Figure 8).

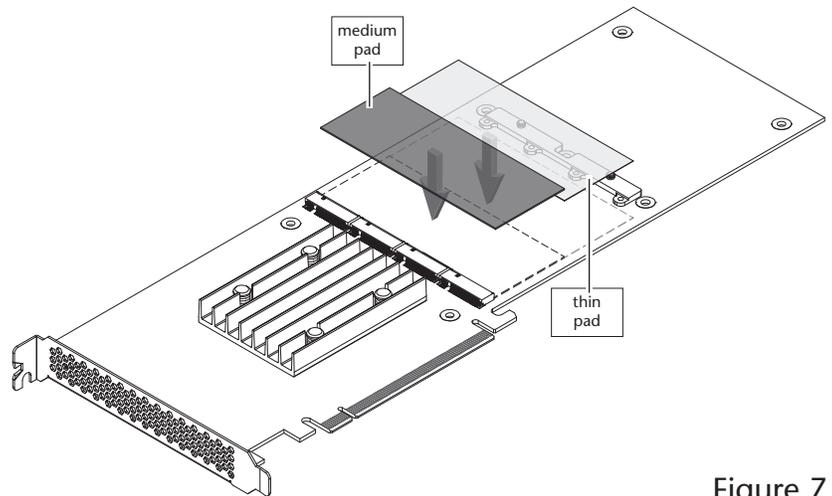


Figure 7

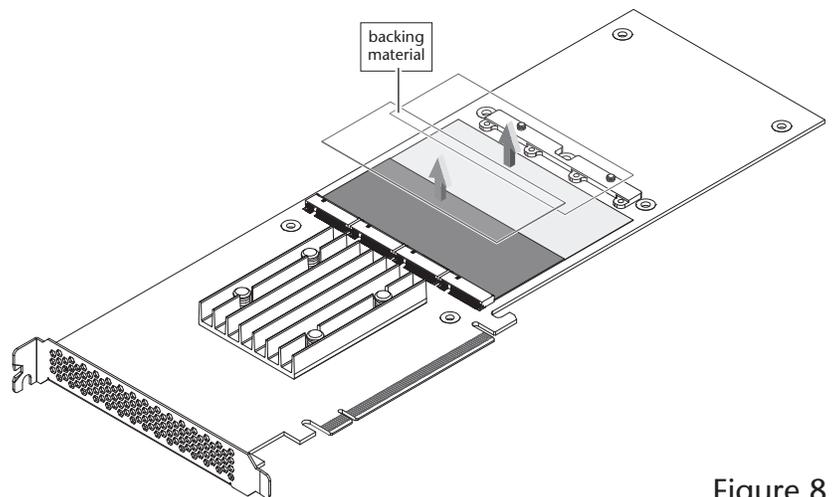


Figure 8

19. If you are installing four SSDs now, skip to step 21. Otherwise, cut the backing material as shown, removing 1/4 of each sheet when installing one or three SSDs, or 1/2 of each sheet when installing two SSDs (Figure 9).

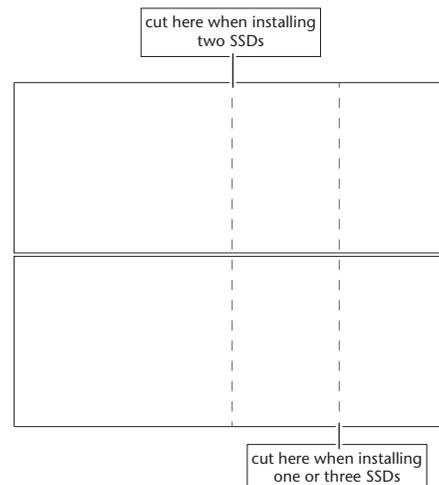


Figure 9

## SSD and Card Installation Steps

20. Reapply the cut backing material to the thermal transfer pads as shown where no SSD(s) will be installed (**Figure 10**). By reapplying the backing plastic, you are protecting the sticky thermal pad from collecting dust, and the thermal pad will be clean when you are ready to install additional SSDs. Note that this example shows preparation for installing only one SSD.

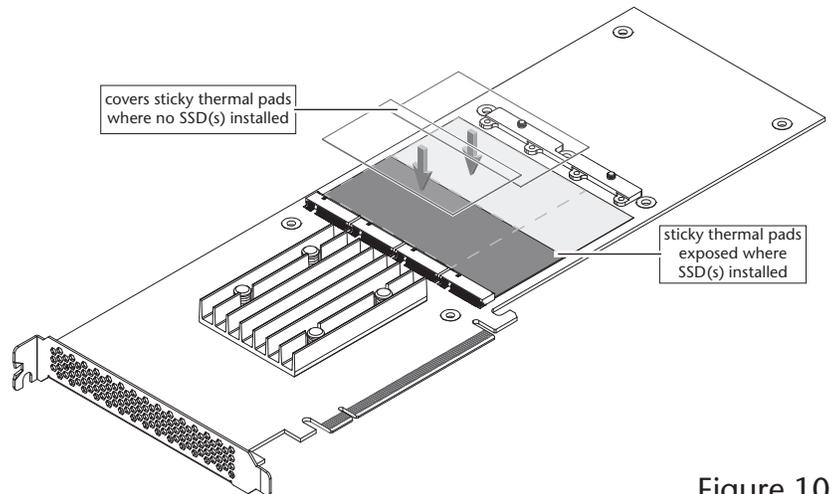


Figure 10

21. Handling it by its edges, remove an SSD from its packaging.

22. Insert the SSD into one of the SSD sockets (where the thermal transfer pad or pads' sticky side is exposed) until it snaps into place (**Figure 11**).

23. Repeat steps 21 and 22 with any remaining SSDs left to install (**Figure 11**).

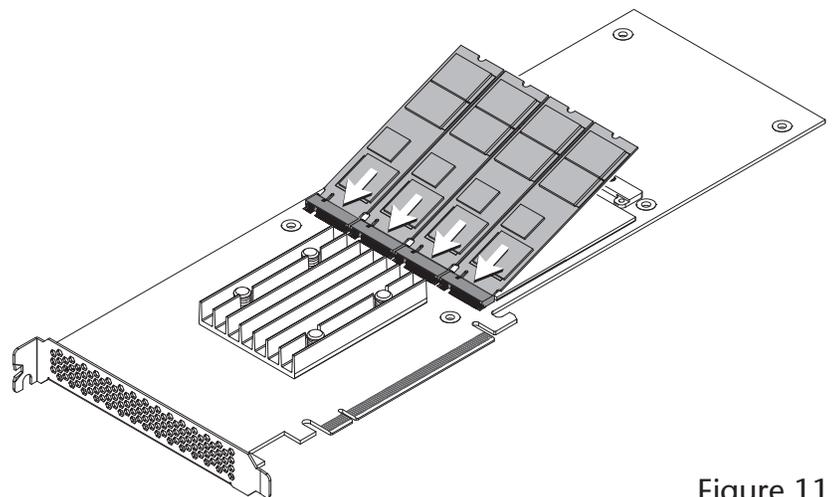


Figure 11

24. Using screws you removed previously, secure the SSD(s) to the card (**Figure 12**); **do not overtighten the screws**. If you installed fewer than four SSDs, reinstall remaining screws into the open holes.

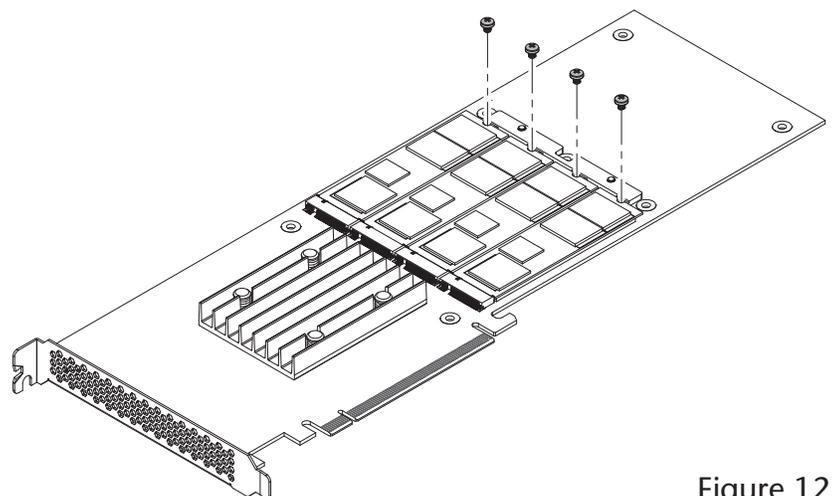


Figure 12

## SSD and Card Installation Steps



**Support Note:** If you have the earlier version of this product that shipped with a thermal transfer pad pre-attached to the card, please skip to step 28 to complete the installation.

25. Peel off and set aside the backing material to expose the sticky side on the thermal transfer pad attached to the heat sink (**Figure 13**).

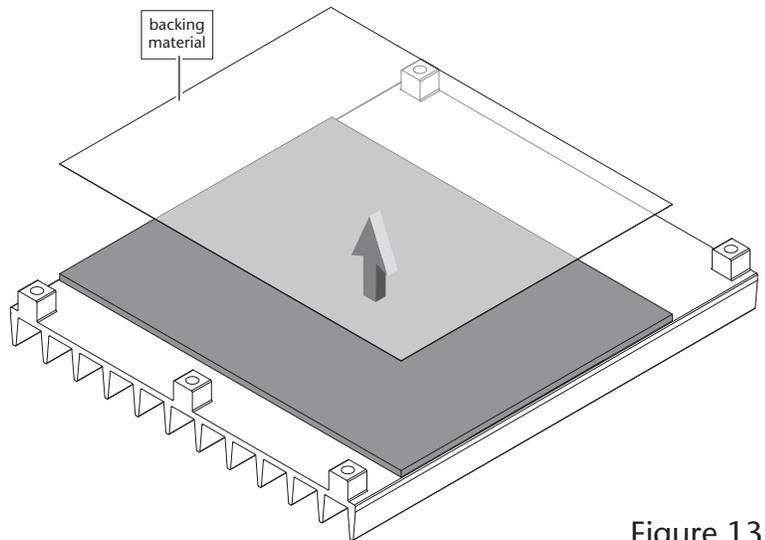


Figure 13

26. If have installed four SSDs, skip to step 28. Otherwise, cut off 1/4 of the backing material sheets as shown if you installed one or three SSDs, or cut off 1/2 of the backing material if you installed two SSDs (**Figure 14**).

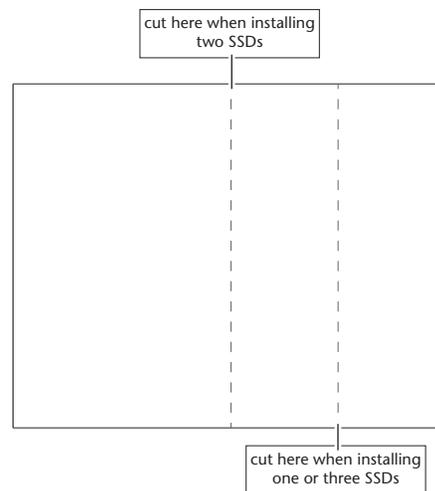


Figure 14

27. Reapply the cut backing material to the heatsink's thermal transfer pad as shown where no SSD(s) were installed (**Figure 15**). By reapplying the backing plastic, you are protecting the sticky thermal pad from collecting dust, and the thermal pad will be clean when you are ready to install additional SSDs.

This example shows reapplying the backing material when only one SSD was installed. Note the location of the threaded screw holes on the heatsink; the side with two holes covers the SSD sockets.

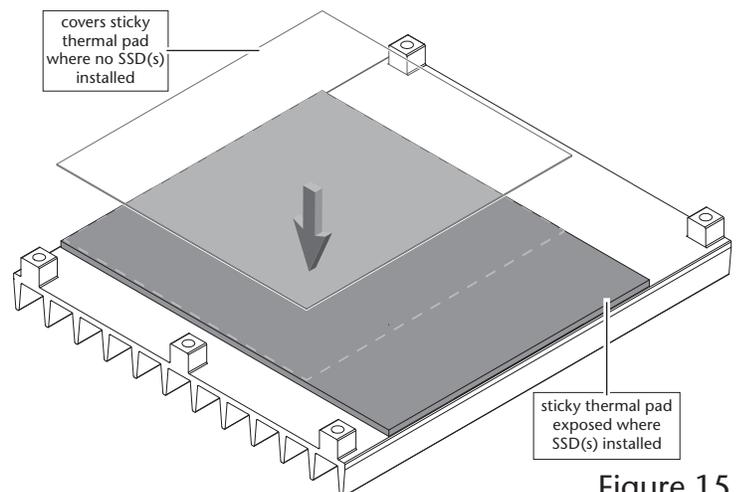


Figure 15

## SSD and Card Installation Steps

28. Set the heatsink on top of the SSDs, aligning the threaded holes in the heatsink with the corresponding holes in the card as shown (Figure 16). Note that there are three holes on one side and two on the other.

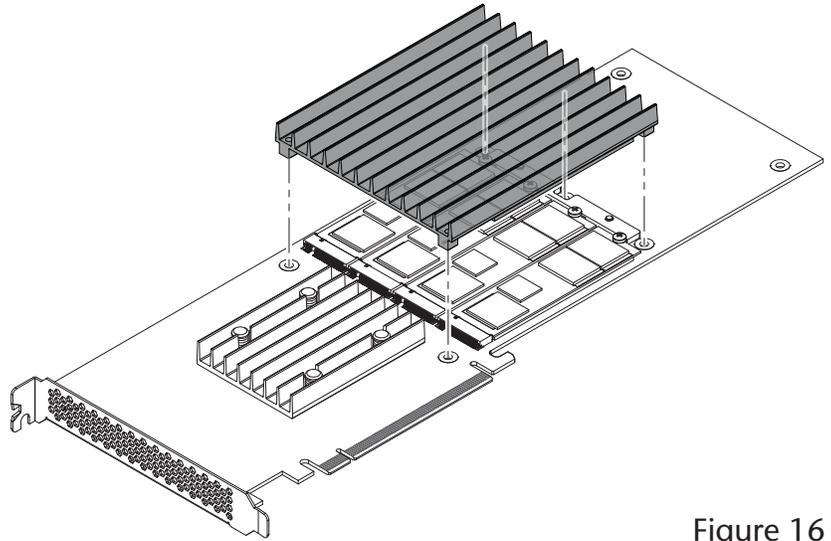


Figure 16

29. Holding the heatsink firmly against the card, flip over the Sonnet M.2 4x4 PCIe Card (Figure 17).
30. Secure the heatsink to the card with the five screws you removed previously (Figure 17); do not overtighten the screws.

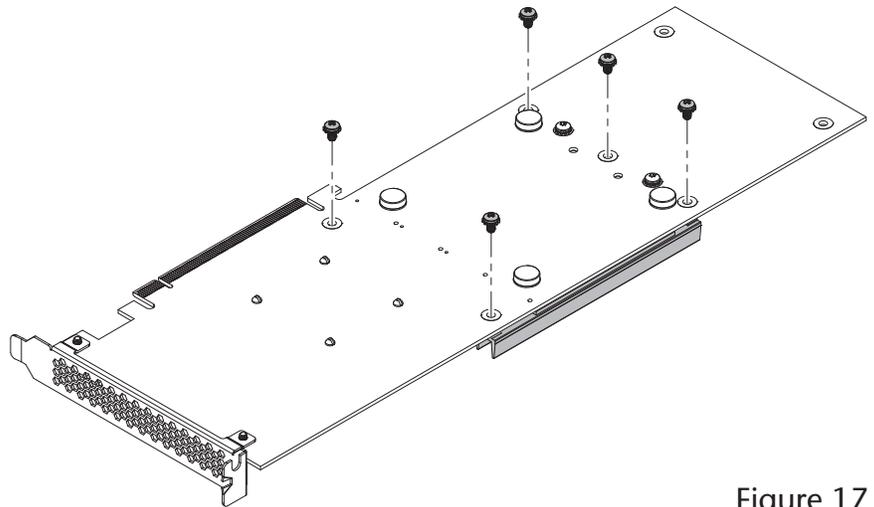


Figure 17

## Card Installation Steps

1. Shut down your computer or expansion chassis, disconnect its power cable, and then open it to access the expansion card area (PCI Express slots); refer to the user manual for specific information
2. Locate an available x16 PCIe slot and remove its access cover if necessary.
3. Install the Sonnet card with attached SSDs into the slot; **make sure the card is firmly seated and secured (use the computer's PCIe card retaining latch on the slot if present).**
4. Close your computer or expansion chassis.
5. Reconnect the computer's power cable.

## SSD Formatting and Configuration, and Support Information

### Formatting SSDs

#### macOS:

Use Disk Utility (found in the Utilities folder within the Applications folder) to format installed SSDs.



**Support Note for Mac Users:** macOS 10.14.6+ supports both 512 and 4k block size SSDs, but macOS 10.13.6 supports only 4k block size SSDs. SSDs 1TB or larger are shipped from the factory programmed with a 4k block size. If you have smaller SSDs that are programmed with 512 block size, and you need to be compatible with macOS 10.13.6, you may need to reprogram your SSDs to a 4k block size. Go to [www.sonnettech.com/support/kb/kb.php](http://www.sonnettech.com/support/kb/kb.php), navigate to the support page for Sonnet M.2 4x4 PCIe Card, and then open the FAQ about *Programming SSDs to 4k Block Size for Compatibility With macOS 10.13.6* for more information.

#### Windows:

If you intend to format SSDs connected to the Sonnet card using Windows drive formatting tools (Disk Management), you may locate instructions by using “format volume”, and “create striped volume” as search items in Windows Help.

#### Linux

Use the tools or utilities you would normally use to format internal drives.

### RAID Configuration Support Information

#### macOS:

Sonnet M.2 4x4 PCIe Card supports RAID 0, RAID 1, and concatenated disk set configurations of SSDs under macOS 10.14.6 and later. Additionally, RAID 5 configuration is supported via third party software (sold separately).

#### Windows:

Sonnet M.2 4x4 PCIe Card supports RAID 0, RAID 1, RAID 5, and concatenated disk set configurations of SSDs.

#### Linux:

Sonnet M.2 4x4 PCIe Card supports RAID 0, RAID 1, RAID 5, and concatenated disk set configurations of SSDs.

### Booting From Attached SSDs

#### macOS:

Sonnet M.2 4x4 PCIe Card supports booting from individual (non-RAIDed) SSDs when the card is installed in Mid 2010, Mid 2012, and 2019 Mac Pro computers, plus Thunderbolt-to-PCIe card expansion systems. Please note that in some cases it may be necessary for you to hold the *option* key during a start, and then select the startup disk attached to the Sonnet card.

If the Fusion card is installed in a Thunderbolt chassis, and you are using a Mac with the Apple T2 Security Chip, then you must enable External Boot in the Startup Security Utility.

#### Windows and Linux:

*Sonnet M.2 4x4 PCIe Card does not support booting in computers running Windows or Linux.*

### Contacting Customer Service

The Sonnet Web site located at [www.sonnettech.com](http://www.sonnettech.com) has the most current support information and technical updates. Before contacting Customer Service, please check our Web site for the latest updates and online support files, and check this Quick Start Guide for helpful information.

Email support requests generally receive the fastest responses, and are usually processed within a 24-hour period during normal business hours, excluding holidays. When you contact Customer Service, have the following information available so the customer service staff can better assist you:

- Product name
- SSD model(s)
- Computer model
- OS version
- A System Report (macOS), or a Microsoft System Information MSINFO32 (Windows) report (Windows), along with a description of the issue(s) you are encountering with your device

If further assistance is needed, please contact **Sonnet Customer Service** at:

**E-mail:** [support@sonnettech.com](mailto:support@sonnettech.com)

**Tel:** 1-949-472-2772

(Monday–Friday, 9 a.m.–5 p.m. Pacific Time, excluding holidays)

#### Japan Customers

Contact Sonnet Customer Service Japan at:

**E-mail:** [jp.support@sonnettech.com](mailto:jp.support@sonnettech.com)



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